UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,154	12/18/2001	Hideo Yamakura	16869S-040000US	6231

20350 7590 04/08/2005

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
DAVIS, DAVID DONALD	

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,154	YAMAKURA ET AL.	
	Examiner	Art Unit	
	David D. Davis	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-23* is/are pending in the application.

4a) Of the above claim(s) *7-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6 and 13-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 7-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 11, 2004.

Claim Objections

2. Claim 19 is objected to because of the following informalities: Claim 19 is objected to because it is grammatically confusing. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, in line 2 of claim 16 "the second magneto-resistive effect element" and in lines 4-5 of claim 16 "the first magneto-resistive effect element" are indefinite because the lack antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6, 13-18 and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Takizawa (US 6,034,849). As per claims 1 and 6, Takizawa shows in figure 1 thin film magnetic head on a substrate having a slider surface. The head includes first magnetoresistive effect element 1a configured to detect a magnetic signal from a magnetic recording medium. Second magneto-resistive effect element 10 disposed adjacent to the first magnetoresistive effect element 1a and configured to measure an amount of lapping of the first magnetoresistive effect element 1a along the slider surface.

As per claim 2, the first magnetoresistive effect element 1a, as shown in figure 8A & 8B, and the second magnetoresistive effect element 10, as shown in figure 4, of Takizawa each include a magnetoresistive film 31 & 15; a first electrode; a second electrode and the magnetoresisive film being disposed between the first and second electrode. Also shown in figures 4 and 8B are the first and second magnetoresistive elements having substantially similar shapes.

As per claim 3, figure 8B of Takizawa shows the first magnetoresistive effect element including a first magnetoreisistive effect film 31 having a first and second shields stacked on a substrate disposed adjacent a first and second side of the first magnetoresistive effect film 31. Figure 1 of Takizawa shows the second magnetoresistive effect element including a second magnetoreisistive effect film 15 with the first and second magnetoreisistive effect films being substantially coplanar.

As per claim 13, Takizawa shows in figure 1 a thin-film magnetic head a first magneto-resistive effect element 1a configured to read a magnetic signal recorded on a magnetic disk and having an end portion that is configured to be exposed to an air bearing surface. Figure 1 of

Takizawa also shows a second magneto-resistive effect element 15 adjacent to the first magneto-resistive effect element 1a and configured to measure an amount of lapping of the first magneto-resistive effect element 1a at the air bearing surface.

As per claim 14, Takizawa shows in figure 1 a thin-film magnetic head on a substrate having a slider surface including a magneto-resistive effect element 1a configured to sense a magnetic signal recorded on a magnetic recording medium. Figure 1 also shows a first connection terminal configured to present a signal indicative of a detected magnetic resistance of the magneto-resistive effect element. Figure 1 shows a second connection terminal adjacent to the magneto-resistive effect element 1a configured to present a signal received from a magneto-resistive effect element such that the signal is indicative of a measured amount of lapping of the magneto-resistive effect element along the slider surface.

As per claim 15, Takizawa shows in figure 1 that the slider surface is perpendicular to a surface of the substrate including the first connection terminal and the second connection terminal. As per claim 16, Takizawa shows in figure 1 an end portion of a second magneto-resistive effect element 15 constitutes at least a portion of the slider surface and is configured to be lapped to change a resistance characteristic of the second magneto-resistive effect in order to measure the amount of lapping of a first magneto-resistive effect element.

As per claim 17, figures 8A and 8B show an inductive element coupled to the first magneto-resistive effect element 31 and configured to write information on a magnetic recording medium. As per claim 18, an end portion of the first magneto-resistive effect element 1a of Takizawa constitutes a portion of the slider surface. As per claim 20, figure 1 of Takizawa shows that second magneto-resistive effect element 15 is not shielded. As per claim 21,

Takaizawa discloses that a resistance characteristic of the second magneto-resistive effect element 15 is configured to change as a portion of the second magneto-resistive effect element 15 is removed during lapping. As per claim 22, Takizawa discloses that an end portion of the second magneto-resistive effect element 15 constitutes at least a portion of the slider surface and is configured to be lapped to change a resistance characteristic of the second magneto-resistive effect to measure the amount of lapping of the first magneto-resistive effect element.

As per claim 23, Takizawa discloses a thin-film magnetic head on a substrate having a slider surface a first magneto-resistive effect element 1a configured to detect a magnetic signal from a magnetic recording medium, as shown in figure 1. Figure 8B show the first magneto-resistive effect element 1a including a first magneto-resistive effect film 31, an upper shield disposed above the first magneto-resistive effect film 31, and a lower shield disposed below the first magneto-resistive effect film.

The first magneto-resistive effect film, the upper shield, and the lower shield. are stacked on the substrate, as shown in figure 8B of Takizawa. A second magneto-resistive effect element adjacent to the first magneto-resistive effect element 1a and configured to measure an amount of lapping of the first magneto-resistive effect element 1a along the slider surface is also shown in figure 1. The second magneto-resistive effect element includes a second magneto-resistive effect film 15, as shown in figure 4 for example. The first magneto-resistive effect film and the second magneto-resistive effect film are formed substantially coplanar, as shown in figure 1 of Takizawa.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa (US 6,034,849). Takizawa discloses the claimed invention. See the description, supra. However, Takizawa is silent as the substrate being formed of a non-magnetic material of Al_2O_3-TiC or SiC. Takizawa is also silent as to the thin-film magnetic head having dimensions approximately 1.2 millimeters wide, approximately 1 millimeter long, and approximately 0.3 to approximately 0.33 millimeters high.

Official notice is taken of the fact that substrates made of a non-magnetic material of Al_2O_3-TiC or SiC is notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that the substrate of Takizawa is formed from Al_2O_3-TiC or SiC as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the

invention was made would have been motivated to specify that a substrate is formed from Al_2O_3-TiC or SiC, which is well within the purview of a skilled artisan and absent an unobvious result, because Al_2O_3-TiC or SiC are excellent thermal and electrical insulators that are and suitable for substrate, as well as cost effective and easily procured for the manufacturing process.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify the dimensions to be approximately 1.2 millimeters wide, approximately 1 millimeter long, and approximately 0.3 to approximately 0.33 millimeters high of the thin film magnetic head of Takizawa as suggested in the art. The rationale is as follows: the purpose of the thin film magnetic head is to read information from a magnetic medium. The head need not have dimensions approximately 1.2 millimeters wide, approximately 1 millimeter long, and approximately 0.3 to approximately 0.33 millimeters high to read information from a magnetic medium. Realizing this, one of ordinary skill in the art at the time the invention was made would have been motivated to specify dimensions of approximately 1.2 millimeters wide, approximately 1 millimeter long, and approximately 0.3 to approximately 0.33 millimeters high, which is well within the purview of a skilled artisan and absent an unobvious result, so as provide a head small enough for a predetermined application.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action *because of newly added claims 13-23*. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David D. Davis
Primary Examiner
Art Unit 2652

ddd